



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,548	02/18/2004	Meng Ding	HIT1P068/HISJ920030272US1	3381
50535 7590 04/04/2008 ZILKA-KOTAB, PC- HIT P.O. BOX 721120 SAN JOSE, CA 95172-1120				
EXAMINER				
KLIMOWICZ, WILLIAM JOSEPH				
ART UNIT		PAPER NUMBER		
2627				
MAIL DATE		DELIVERY MODE		
04/04/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/781,548

Applicant(s)

DING ET AL.

Examiner

William J. Klimowicz

Art Unit

2627

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-17 and 20-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3, 5 and 7-17 is/are allowed.
- 6) ☒ Claim(s) 6 and 20-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Status

Claims 1-3, 5-17, 20-22 are currently pending.

Claims 4, 18 and 19 have been cancelled by Applicant.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 6, 20 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Gill (US 2005/0018365 A1).

As per claims 20 and 22, Gill (US 2005/0018365 A1) discloses a data storage system (FIG. 3), comprising: a housing (inherently provided to form a protective environment), a motor (318) connected with said housing; a spindle (314) connected with said motor (318); a magnetic disk (312) supported upon said spindle (314) for rotation about its own axis; an actuator (319, 327); and a slider (313) supported by said actuator (319, 327) for pivotal motion across a surface of said disk (312); a magnetic sensor formed on said slider (313), said magnetic sensor comprising: a first magnetic shield layer (S2), having a raised portion (see FIGS. 7-9, 11-13) and first and second laterally opposed lower portions extending laterally there from (sides of S2 as

seen in FIGS. 7-9, 11-13); a magnetoresistive sensor (702) formed above said raised portion of said first magnetic shield layer (S2) (just invert Figures), said magnetoresistive sensor (702) having an anti-parallel coupled self pinned layer (e.g., 1216, 1218, 1214), and having a free magnetic layer (e.g., 1222); and a first and second compressive layers (712, 712) comprising Rh formed above said first and second laterally opposed lower portions of said shield layer (S2).

Additionally, as per claim 6, first and second layers of hard magnetic material (706, 706) formed over said first and second compressive layers (712) (see FIG. 8); and said first and second metallic layers (712, 712) comprising Rh formed over said first and second layers of hard magnetic material.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gill (US 2005/0018365 A1).

See the description of Gill (US 2005/0018365 A1), *supra*.

As per claim 21, Gill (US 2005/0018365 A1) remains silent with respect to wherein said first and second compressive layers comprise Cu.

Official notice is taken that copper sputtered in magnetic sensors of the type disclosed by Gill (US 2005/0018365 A1) are notoriously old and well known and ubiquitous in the art; such

Officially noticed fact being capable of instant and unquestionable demonstration as being well-known.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the compressive metallic layers (712) as being copper (in lieu of other conductive layers such as Rh, Ta or W).

The rationale is as follows: one of ordinary skill in the art would have been motivated to provide the compressive metallic layers (712) as being copper (in lieu of other conductive layers such as Rh, Ta or W, since such a simple substitution of one inexpensive conductive element (copper) for another conductive element, is seen as nothing more than an obvious expedient, based on the teachings of using metals or dielectrics for providing a compressive stress to the self pinned layer.

Response to Arguments

Applicant's arguments with respect to claims 6 and 20-22 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

Claims 1-3, 5, 7-17 are tentatively considered allowable over the art of record, pending an updated search, amendments or arguments presented by the Applicant and considered by the Examiner in reply to this office communication.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William J. Klimowicz whose telephone number is (571) 272-7577. The examiner can normally be reached on Monday-Friday (7:30AM-6:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph H. Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William J. Klimowicz/
Primary Examiner, Art Unit 2627